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Canning

182

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PROVISIONAL SPECIFICATION.

DUPLICATE

Improvements in and in Means for Preserving Food.

I, SAMUEL GRIFFIN of Kingston Ironworks Bath Engineer do hereby declare the nature of this invention to be as follows:—

My present invention relates to means for preserving animal or vegetable food, the method employed being somewhat similar to that usually followed in the ordinary process of canning. The canning process however, although suitable for wholesale purposes, is not available for private or domestic use, the working plant and technical skill required being quite prohibitive in the latter cases. Further the ordinary sealed metallic can has the serious inconvenience that when once opened, it cannot be resealed, the whole contents therefore must be quickly used, the can itself being useless to serve the same purpose again, and further, serious cases of contamination of the contents of such metallic cans frequently occur through internal corrosion.

In order to remedy these defects, according to my present invention, I construct a vessel, or vessels of any suitable shape and of non-corrosive material (such as glass or earthenware) such vessel or vessels having a suitable opening (which can be hermetically closed by a movable airtight stopper) through which the contents can be introduced, or withdrawn. This said air tight stopper is held in position by means of any suitable device—e.g., a screw or bayonet joint. A small hole or opening communicates with the interior of the said vessel or vessels (advantageously through the beforementioned stopper) this hole or opening being hermetically closed, or opened, by means of a suitably arranged plug or stopper, or other device. In certain cases I arrange a suitable water, or other liquid, or steam, bath in which the said vessel, or vessels, can be heated to a temperature sufficient to cook, or partially cook the contents.

According to another arrangement, in addition to the before mentioned small hole or opening, I provide a further hole or opening into the interior of the said vessel or vessels through which steam from any convenient source may be introduced for the purpose of cooking, or partially cooking, the contents of the said vessel, or vessels, means being provided for removing the resultant condensed water if desired.

The mode of operation is as follows:—The food to be preserved is introduced into the said vessel, or vessels, together with such water, syrup, or other liquid, or preservative matter, as may be desirable, or necessary. The said stopper is then secured in its position, the beforementioned small hole or opening being in free communication with the atmosphere. The said vessel or vessels are now heated (either by means of the beforementioned liquid, or steam bath, or by the introduction of steam into the interior of same) to the required temperature to cook, or partially cook, the contents, a portion of the steam or vapour generated in, or introduced into the interior of the said vessel, or vessels, during the process of cooking, escaping through the before mentioned small hole or opening into the atmosphere, and at same time expelling the air contained in the said vessel or vessels.

When the process of cooking, or partially cooking, the said food is complete, the before mentioned small hole or opening is hermetically closed by means of the said plug, or stopper, or other device. The germs of putrefaction and fermentation are

[Price 8d.]

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thus destroyed, and all atmospheric air expelled, the ingress of germ laden air being at the same time prevented.

It will be obvious that vessels constructed according to my present invention will have the advantage of being noncorrosive, and at the same time they may be used indefinitely for the same purpose, and while quite adapted for wholesale purposes, they are equally suitable for domestic or private use.

Dated this 13th day of August 1895.

SAMUEL GRIFFIN.

COMPLETE SPECIFICATION.

Improvements in and in Means for Preserving Food.

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I, SAMUEL GRIFFIN of Kingston Iron Works, Bath, in the County of Somerset, Engineer, do hereby declare the nature of my invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement :—

My present invention relates to conserving or preserving animal or vegetable food the method employed according to one part of my present invention being somewhat similar to that usually followed in the ordinary process of canning. 15

The canning process however although suitable for wholesale purposes is not available for private or domestic use the working plant and technical skill required being quite prohibitive in the latter cases. Further the ordinary sealed metallic can has the serious inconvenience that when once opened it cannot be re-sealed, the whole contents therefore must be quickly used the can itself being useless to serve the same purpose again, and further serious cases of contamination of the contents of such metallic cans frequently occur through internal corrosion. 20

In order to remedy these defects according to my present invention I construct a vessel or vessels of any suitable shape and of non-corrosive material (such as glass or earthenware) such vessel or vessels having a suitable opening (which can be hermetically closed by a movable air-tight stopper) through which the contents can be introduced or withdrawn. This said air-tight stopper is held in position by means of any suitable device *e.g.* a screw or bayonet joint. 25 30

A small hole or opening communicates with the interior of the said vessel or vessels (advantageously through the before-mentioned stopper) this hole or opening being hermetically closed or opened by means of a suitably arranged plug or stopper or other similar or suitable device. In certain cases I arrange a suitable water or other liquid or steam bath in which the said vessel or vessels can be heated to a temperature sufficient to cook or partially cook the contents. 35

According to another arrangement in addition to the before-mentioned small hole or opening I provide a further hole or opening into the interior of the said vessel or vessels through which steam from any convenient source may be introduced for the purpose of cooking or partially cooking the contents of the said vessel or vessels means being provided for removing the resultant condensed water if desired and afterwards hermetically sealing same. 40

The mode of operation is as follows :—

The food to be preserved is introduced into the said vessel or vessels together with such water syrup or other liquid or preservative matter as may be desirable or necessary. The said stopper is then secured in its position the before-mentioned small hole or opening being in free communication with the atmosphere. The said vessel or vessels are now heated (either by means of the before-mentioned liquid or steam bath or by the introduction of steam into the interior of same) to the required temperature to cook or partially cook the contents a portion of the steam or vapour generated in or introduced into the interior of the said vessel or vessels during the process of cooking escaping through the before-mentioned small hole or 45 50

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opening into the atmosphere and at same time expelling the air contained in the said vessel or vessels.

When the process of cooking or partially cooking the said food is complete the before mentioned small hole or opening is hermetically closed by means of the said
5 plug or stopper or other similar device. The germs of putrefaction and fermentation are thus destroyed and all atmospheric air expelled the ingress of germ-laden air being at the same time prevented.

The introduction of steam into the interior of the vessel together with the removal of the resultant condensed water as previously described for the purpose
10 of either cooking or partially cooking its contents is specially applicable to the conservation of vegetables fruits or other substances in which it is desirable or necessary to prevent the contact of same with water or other liquid in the said vessel after the process of cooking and sealing is completed.

Such vegetables fruits or other substances are thus conserved in a practically
15 dry state a condition which in the case of many vegetables fruits and animal substances is essential to a retention of form and flavour.

For the purpose of supplying steam either for the before-mentioned bath or for direct introduction into the interior of the conserving vessels I employ any suitable steam generator.

20 It will be obvious that vessels constructed according to my present invention will have the advantage of being non-corrosive and at the same time they may be used indefinitely for the same purpose and while quite adapted for wholesale purposes they are equally suitable for domestic or private use.

DESCRIPTION OF THE DRAWINGS.

25 Figs. 1, 2 3 represent the conserving vessels fitted with air-tight stoppers or capsules—Figs. 2 and 3 showing the construction according to the first arrangement described in my specification, Fig. 1 showing the construction according to the second arrangement described.

In Figs. 1 and 3 the interior of the stopper or capsule A is conical having a
30 circumferential groove into which is fitted an india-rubber band B which embraces the corresponding conical neck C of the vessel D an orifice E communicates through the coned hole F with the interior of the vessel D the thumbscrew G which is coned at the end to fit the hole F either opens or closes communication with the interior of the vessel D.

35 Fig. 2 shows a modified arrangement for closing the mouth of the vessels D the stopper or capsule A carries a flat india-rubber ring B which rests on the corresponding ground face of the neck C of the vessel D being held in position by the nut H which screws on the exterior of the neck C.

Referring again to Fig. 1—the pocket or annulus I is formed by raising the
40 bottom of the vessel in such a manner as to have a narrow slit or annulus I¹ as communication between it and the interior of the vessel the small orifice J communicates through the corresponding orifice K in the screw plug L with the atmosphere this said communication being either opened or closed by simply unscrewing the screw plug L or tightening it against the rubber washer M. The
45 vessels 2 and 3 are intended for the conservation of such fruit vegetable or other substance as may be advantageously surrounded by and in contact with water, juices, syrup, or other liquid.

The mode of operating these vessels is as follows :—

50 Having placed in the vessel the fruit vegetables or other substance to be conserved the stopper or capsule A is placed in position on the neck C and secured thereto in the arrangement Fig. 2 by screwing down the nut H, and in the arrangement Figs. 1 and 3 by simply forcing it over the conical neck C in either case the object being to make a perfectly air tight joint. The coned hole F is now opened by unscrewing the thumb nut G after which the contents of the vessel are

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either partially or wholly cooked by placing the said vessels in the steam bath Figs. 4 & 5.

During the process of cooking the steam or vapour arising from the heated substance in the interior of the vessel together with the air contained therein will pass through the holes E & F into the interior of the bath and thence into the atmosphere. 5

When the process of cooking or partially cooking is completed the thumb nut G is screwed down forming an air-tight joint at F; the contents are thus hermetically sealed and as the vessel cools a partial vacuum is formed in its interior. To open the vessel it is only necessary to admit the air through the orifices E & F when the partial vacuum in the interior is destroyed, the stopper or capsule A is then removed. 10

The vessel (Fig. 1) is intended for the conservation of such fruit vegetable or other substance as may be advantageously conserved in a practically dry state *i.e.* not immersed in any liquid. For this purpose after having placed the substance to be conserved in the vessel and arranged the stopper or capsule as previously described the plug L is unscrewed thus opening communication between the interior of the vessel and the atmosphere. Communication is now made (by means of a pipe not shown) between the orifice E and the interior of any suitable steam boiler from which steam at any suitable pressure (for instance at about one or two pounds pressure on the square inch) passes through the said pipe into the interior of the said vessel thus cooking or partially cooking its contents; the resultant condensed water and surplus steam passing away through the orifices J and K. After the process of cooking or partially cooking is completed and while steam is still passing into the vessel the thumb screw G and plug L are tightened against their respective seatings thus hermetically sealing the said vessel. Upon cooling a partial vacuum will be formed in the interior of the said vessel and at the same time any condensed water which may remain in the interior will gravitate into the pocket or annulus I thus leaving the contents in a practically dry condition. 15 20 25

It will be obvious that a separate chamber corresponding to the pocket I may be attached to the vessel for the purpose of receiving the condensed water and removed when the process of cooking or partially cooking is completed or as an alternative a separate false bottom in the bottle itself may be employed. 30

Figs. 4 and 5 show sectional elevation and plan of steam bath. A represents the bath (supported on legs A¹ A¹) which is fitted with a cover B held in position by the thumb nuts C C on the rubber collar C¹ and having a steam inlet D with a corresponding outlet for steam and condensed water E¹. 35

F F F F represent the conserving vessels in position ready for the process of cooking or partially cooking the contents. This bath is intended to operate in accordance with the first arrangement described in my specification. 40

The vessels F F F F containing the substance to be conserved are placed in the interior of the bath as shown after which steam is introduced by a pipe (not shown) through the inlet D into the interior of the bath where it surrounds the said vessels F F F F thus cooking or partially cooking their contents. During the process of cooking a portion of the steam or vapour generated in the interior of the said vessels together with the atmospheric air contained in the latter will be expelled through the orifice E into the interior of the bath where mingling with the steam therein it will ultimately pass away together with the condensed water through the pipe E¹. After the process of cooking or partially cooking is completed and with the hot steam still in the bath the thumb nuts G are tightened by hand on their seatings and the vessels thus hermetically sealed. On cooling a partial vacuum is formed in the interior of the said vessels. 45 50

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

1. Conserving food by placing the food in a jar or vessel adapted to permit steam

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to pass therethrough and allow the escape therefrom of any waters of condensation which may form during cooking then passing a flow of steam through said jar or vessel and draining off any waters of condensation during cooking and when the food is sufficiently cooked then hermetically closing said jar or vessel so that on
 5 cooling a partial vacuum is caused and maintained and the food thus conserved for any length of time.

2. The herein described process for conserving food by the introduction of live steam into the interior of the jar or vessel in which the food is placed to be conserved draining off any water of condensation from this jar or vessel during
 10 cooking and then hermetically sealing the said jar or vessel.

3. The herein described improved means for conserving or preserving food consisting of a jar or vessel adapted to hold the food a stopper to said vessel a hole or opening communicating with the interior of said vessel means to tightly stopper said opening or permit steam to pass therethrough another hole or opening also
 15 communicating with the interior of said vessel so as to permit live steam to pass through the latter, means to tightly stopper this last-named opening and means to draw off from the interior of said vessel any waters of condensation or other liquid desired to be removed therefrom all substantially as and for the purposes hereinbefore set forth.

20 4. The herein described improved means for conserving or preserving food consisting of a jar or vessel adapted to hold the food a stopper to said vessel a hole or opening communicating with the interior of said vessel means to tightly stopper said opening or permit steam to pass therethrough another hole or opening also communicating with the interior of said vessel so as to permit live steam to pass
 25 through the latter, means to tightly stopper this last-named opening and means to separate and keep separated from the food in the vessel any water of condensation or other liquid present in the vessel substantially as and for the purposes hereinbefore set forth.

5. The means or apparatus arranged combined and acting substantially in the
 30 manner and for the purposes hereinbefore described with reference to Fig. 1 of the drawings hereunto annexed.

6. In stoppering bottles jars or the like or other vessels for conserving or preserving food—the combination with a capsule or cover such as A closing the mouth of the vessel of a hole or opening such as F through said cover and a hand
 35 operated or mechanically operated screw plug or auxiliary stopper such as G carried in said cover and adapted to close the said hole or opening in said cover such closure being independent of internal or external pressure substantially in the manner and for the purposes hereinbefore described and illustrated in Figs. 1, 2 and 3 of the drawings hereunto annexed.

40 7. The combination with a food conserving vessel of a capsule such as A coned on inside and fitted with elastic collar to embrace exterior of conical neck of conserving vessel said capsule having a hole for passage of steam and air said hole being either closed or opened by a screw or equivalent mechanical device operated by hand and forming an integral part of said capsule.

45 8. In preserving or conserving food—the combination with jars or vessels such as shown in Figs. 2 and 3 of a steam bath or apparatus arranged and acting substantially in the manner and for the purposes hereinbefore described and illustrated in Figs. 4 and 5 of the drawings hereunto annexed.

Dated this 14th day of May 1896.

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